

**REMARKS**

Claims 19-23, 25-29, 32 and 37 are pending in the present application. Claims 19, 20, 23 and 25-27 have been amended. Claims 1-18, 24, 30, 31 and 33-36 have been canceled.

Applicant thanks Examiner for removal of the 35 USC 112 ¶1 enablement rejection of claims 26-30 and 32-34 of the prior Office Action.

Applicant respectfully requests reconsideration of the application in view of the foregoing amendments and the remarks appearing below.

**Rejection Under 35 U.S.C. § 112**

Claims 26-30 and 32-34 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Office Action states that “the present application only leads one of ordinary skill in the art to the species of silane and arsine, and would not lead one of ordinary skill in the art to any carrier and dopant gas.”

Applicant has amended claims 26-30 and 32-34 so as to be directed to only silane and arsine as the carrier and dopant gases, respectively. Therefore, Applicant respectfully requests that the Examiner withdraw this rejection.

**Rejections Under 35 U.S.C. § 102**

***Chiu***

Claims 19, 23-26, 30, 32, 33, and 37 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,735,633 to Chiu. Applicant respectfully disagrees.

Chiu discloses a plasma extraction reactor for removing vapor phase waste species from an effluent gas stream. The Chiu patent uses a plurality of electrodes to electrically attract vapor phase molecules to the electrodes so as to cause the molecules to deposit in a solid phase on the electrodes.

Claims 19, 23, 25, 26, 32 and 37 (claims 24, 30 and 33 have been canceled), as amended, each require the component of the silane to be deposited on the plurality of substrates by thermal chemical vapor deposition, which is distinctly different from the plasma deposition taught by Chiu. Since Chiu does not disclose or suggest thermal chemical vapor deposition, the Chiu patent cannot anticipate amended claims 19, 23, 25, 26, 32 and 37.

***Suzuki et al.***

Claims 19, 26, 32-33, and 37 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2002/0100417 to Suzuki et al.

Suzuki et al. disclose a trapping device for removing film-deposition components from exhaust gases discharged from a film deposition apparatus. The trapping device includes a plurality of plate heaters defining a zigzag pathway through the device for the exhaust gas to travel through. All of the film deposition components are removed via vapor deposition within the trapping device.

Claims 19, 26, 32 and 37 (claim 33 has been canceled), as amended, each require a step of removing arsine following the step of depositing a component of the silane in the baffled enclosure. Suzuki et al., on the other hand and as admitted in the current Office Action, e.g., in item 9 on page 8, teaches that the Suzuki et al. device removes all gases by deposition. Therefore, if arsine were present, which it is not in the Suzuki et al. publication, it is reasonable to assume that it, too, would be deposited in the Suzuki et al. device. Since Suzuki et al. are completely silent on removing arsine and removing arsine separately from another film-deposition component of an exhaust gas, the Suzuki et al. publication cannot anticipate claims 19, 26, 32 and 37.

For at least the foregoing reasons, Applicant respectfully requests that the Examiner withdraw the current anticipation rejections.

**Rejections Under 35 U.S.C. § 103**

***Chiu and Ordinary Skill in the Art***

Claims 20-22 and 27-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Chiu patent in view of ordinary skill in the art. Applicant respectfully disagrees.

First, each of these claims is dependent from either amended claim 19 or amended claim 26, which is patentable for the reasons discussed above relative to the anticipation rejections. Therefore, each of claims 20-22 and 27-29, as amended, is likewise patentable over the Chiu patent.

More particularly to the obviousness-type rejection, regarding claims 20 and 27 (now essentially amended claims 19 and 26), the Office Action states that Chiu “includes all the

limitations except removing the dopant gas from the exhaust after the carrier gas is removed” and concedes that Chiu teaches removing all gases and depositing them on the substrates in the procedure. The Office Action then posits that one of ordinary skill in the art would have recognized at the time of the invention that the carrier and dopant gas would deposit on the substrate relative to their properties and concentrations and that it should be expected that the carrier gas, in great concentration, should be deposited first and the dopant gas removed afterwards. Applicant respectfully disagrees.

As described above, Chiu teaches a plasma extraction reactor for completely removing vapor phase waste species from effluent gas streams. Chiu requires “complete removal of the waste vapor molecules, and enhance nucleation of the species on the electrode surface to form a film.” (Col. 5, ll. 18-23)

In contrast, Applicant’s amended claims 19 and 20 each require removing the arsine from the exhaust gas in a chamber separate from the enclosure in which the deposition of the component of the silane takes place. Again, Chiu teaches a method of attempting to remove substantially all waste in a single apparatus. Thus, according to the teachings of Chiu, there does not appear to be a need for subsequent scrubbing. Therefore, there appears to be no need for another chamber for removing arsine. Consequently, Applicant respectfully asserts that the present combination is made using an improper amount of hindsight of the present claims

However, the Office Action sets forth an assertion that “[o]ne of ordinary skill in the art would have recognized at the time of the invention that the carrier and dopant gas would deposit on the substrates relative to their properties and concentration. Therefore, it should be expected that the carrier gas, in greater concentration, should be deposited first and the dopant gas removed afterwards.” Applicant respectfully points out that this assertion does not rise to the level of a *prima facie* case of obviousness, since the Office Action does not provide any evidence to support the assertion. Since Applicant believes that the Office Action has not presented a *prima facie* case, the current rejection cannot stand.

***Suzuki and Ordinary Skill in the Art***

Claims 20-22 and 27-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Suzuki publication.

First, each of these claims is dependent from either amended claim 19 or amended claim 26, which is patentable for the reasons discussed above relative to the anticipation rejections. Therefore, each of claims 20-22 and 27-29, as amended, is likewise patentable over the Suzuki et al. publication.

Like the Chiu patent, the Suzuki et al. publication teaches removing all of the film-deposition components from an exhaust gas. Therefore, there appears to be no need for another chamber for removing arsine. Consequently, Applicant respectfully asserts that the present combination is made using an improper amount of hindsight of the present claims.

In addition, here, too, the Office Action sets forth an assertion that “[o]ne of ordinary skill in the art would have recognized at the time of the invention that the carrier and dopant gas would deposit on the substrates relative to their properties and concentration. Therefore, it should be expected that the carrier gas, in greater concentration, should be deposited first and the dopant gas removed afterwards.” Applicant respectfully points out that this assertion does not rise to the level of a *prima facie* case of obviousness, since the Office Action does not provide any evidence to support the assertion. Since Applicant believes that the Office Action has not presented a *prima facie* case, the current rejection cannot stand.

***Chiu and Suzuki***

Claims 23, 24 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Chiu patent and Suzuki publication.

Claims 24 and 30 have been canceled and claim 23 has been rewritten to include limitations not considered by the Examiner in this rejection. Therefore, the present rejection is moot.

***Suzuki and Bowie***

Claims 34, 35 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Suzuki publication as applied to claims 19, 26, 32-33, and 37 above, and in further view of U.S. Patent No. 3,640,513 to Bowie. Applicant respectfully disagrees.

Applicant notes that although claims 34, 35 and 38 have been canceled, the substance of claim 34 has been incorporated into amended independent claim 26 and the substance of claims 35 and 38 has been incorporated into amended claim 23 that depends from amended

independent claim 19. Therefore, the following arguments are directed to claims 23 and 26 in lieu of the original claims 34, 35 and 38.

The Suzuki et al. publication is as described above.

The Bowie patent discloses a low velocity horizontal gas scrubber in which gases to be scrubbed are led into a chamber in which there are baffles mounted across the gas flow path. The baffles have substantial orifices, with high pressure water spray nozzles mounted on the baffles so as to spray water counter to the flow of gases.

Amended claim 23 depends from amended claim 19, which as discussed above relative to the anticipation rejection is patentable over the Suzuki et al. publication. The Bowie patent does not disclose any of the features discussed above as missing from the Suzuki et al. publication. Therefore, amended claim 19, and therefore dependent claim 23, are patentable over the present combination.

Amended independent claim 26 is also patentable over the Suzuki et al. publication as discussed above relative to the anticipation rejection. The Bowie patent does not disclose any of the features discussed above as missing from the Suzuki et al. publication. Therefore, amended claim 26 is patentable over the present combination.

### ***Chiu and Bowie***

Claims 34-35 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the *Chiu* patent as applied to claims 19, 23-26, 30, 32, 33, and 37 above, and in further view of the *Bowie* patent. Applicant respectfully disagrees.

Applicant notes that although claims 34, 35 and 38 have been canceled, the substance of claim 34 has been incorporated into amended independent claim 26 and the substance of claims 35 and 38 has been incorporated into amended claim 23 that depends from amended independent claim 19. Therefore, the following arguments are directed to claims 23 and 26 in lieu of the original claims 34, 35 and 38.

The Chiu and Bowie patents are as described above.

First, amended claim 23 depends from amended claim 19, which as discussed above relative to the anticipation rejection is patentable over the Chiu patent. The Bowie patent does not disclose any of the features discussed above as missing from the Chiu patent. Therefore,

amended claim 19, and therefore dependent claim 23, are patentable over the present combination. Similarly, amended independent claim 26 is also patentable over the Chiu patent as discussed above relative to the anticipation rejection. The Bowie patent does not disclose any of the features discussed above as missing from the Chiu patent. Therefore, amended claim 26 is patentable over the present combination.

Second, Applicant respectfully submits that there is no motivation or suggestion to combine the Chiu and Bowie reference as asserted. Chiu discloses electrodes for collecting waste materials by deposition. Bowie discloses apertured baffles. Applicant respectfully asserts that it cannot reasonably be concluded without supporting evidence that the Chiu electrodes can be fenestrated in the manner of Bowie. This is so because it is not known how the apertures will affect the operation of the electrodes. This cannot simply be left to speculation, as unknown undesirable consequences may result.

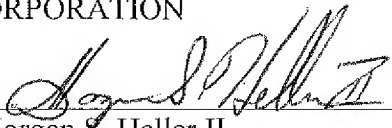
For at least the foregoing reasons, Applicant respectfully requests that the Examiner withdraw the present obviousness-type rejections.

### **CONCLUSION**

Applicant submits that claims 19-23, 25-29, 32 and 37, as amended, are in condition for allowance. Therefore, prompt issuance of a Notice of Allowance is respectfully solicited. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,

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